

**TECH OFFER**

**Second Skin: An Innovative Solution to Prevent Joint Injuries of Sports Players**



**KEY INFORMATION**

TECHNOLOGY CATEGORY:

**Materials** - Nano Materials

**Chemicals** - Coatings & Paints

**Materials** - Composites

TECHNOLOGY READINESS LEVEL (TRL): **TRL4**

COUNTRY: **THAILAND**

ID NUMBER: **TO175042**

**OVERVIEW**

Professional football clubs have a strong economic motivation to invest in injury prevention and rehabilitation programs. Among sports-related injuries, ankle sprains stand out as one of the most common injuries, accounting for 10-30% of such injuries. Even more concerning is the recorded data indicating that a substantial 80% of ankle sprains result in injury recurrence and enduring instability. This underscores the critical need for innovative solutions to address and prevent such joint injuries, ultimately enhancing players' performance, prolonging their careers, and safeguarding the financial interests of professional football clubs.

Through interdisciplinary research, the technology owner has developed a second skin designed to provide optimal support and protection for ankle joints, emerging as a promising avenue in the pursuit of minimizing these pervasive and recurrent injuries. This innovative second skin is made of a non-woven fabric that incorporates graphene fibers using a spraying technique. The application of this second skin should be prior to each practice session, as the level of support it provides decreases during physical activity. The second skin has remarkable performance and high impact resistance, ensuring a user-friendly experience.

The technology owner is seeking collaboration with relevant partners, such as football clubs and sports medical centers in Asia and Europe.

## TECHNOLOGY FEATURES & SPECIFICATIONS

The prevention of ankle sprains is generally achievable by using external ankle supports, particularly for athletes with a history of ankle injuries. The technology owner has identified a significant issue related to the complexity of tap wrapping and developed a spray solution to replace tap wrapping in the market. The technology exhibits the following features:

- A novel combination of nano-materials: Polycaprolactone (PCL) and graphene
- Innovative application method: utilising a spray technique
- High impact resistance during sports activities
- Easy to apply with high efficiency
- User-friendly solution to enhance user comfort
- Environmentally friendly

## POTENTIAL APPLICATIONS

This technology can be used to support ankle movement during sports activities, including both training and competition. Potential applications include (but not limited to):

- Football and soccer
- Basketball
- Tennis
- Track and field
- Gymnastics
- Other sports and exercise

## UNIQUE VALUE PROPOSITION

- Innovative formulations using nano-materials
- Easy to apply by utilising a spray technique
- Remarkable performance due to high impact resistance
- User-friendly and high comfortability